Amendments to the Drawings:

The attached sheet of drawing includes changes to Figs. 1 and 3. These sheets, which includes Figs. 1 and 3, replaces the original sheet including Figs. 1 and 3, correcting defects therein.

Attachment: Replacement Sheet

REMARKS

By the above amendment, claims 1 and 18 have been amended to clarify the features thereof.

Also, with regard to the drawing objection, submitted herewith are Replacement Sheets of Drawings for Figures 1 and 3, wherein the reference character 111 and the lead line thereof at the left-hand side of such figures, has been deleted, noting that at the right-hand side, there is shown the reference character 111, representing a color filter layer adjacent the substrate 102, and an organic protecting layer 112 on opposite sides of the liquid crystal layer 110'. Accordingly, Applicants submit that the Replacement Sheets of Drawings overcome the drawing objection and request entry of the Replacement Sheets.

As to the rejection of claims 1-6, 10 and 18-24 under 35 USC 102(b) as being anticipated by Gibbons (US 5,731,405); the rejection of claims 7-9 under 35 USC 103(a) as being unpatentable over Gibbons; the rejection of claim 11 under 35 USC 103(a) as being unpatentable over Gibbons in view of EP 850,975; and the rejection of claims 12-17 under 35 USC 103(a) as being unpatentable over Gibbons in view of Hebiguchi et al (US 6,433,764) or Hasegawa et al (US 6,344,889); such rejections are traversed insofar as they are applicable to the present claims, and reconsideration and withdrawal of the rejections are respectfully requested.

As to the requirements to support a rejection under 35 USC 102, reference is made to the decision of In re Robertson, 49 USPQ 2d 1949 (Fed. Cir. 1999), wherein the court pointed out that anticipation under 35 U.S.C. §102 requires that each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. As noted by the court, if the prior art reference does not expressly set forth a particular element of the claim, that

reference still may anticipate if the element is "inherent" in its disclosure. To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." Moreover, the court pointed out that inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.

In applying Gibbons to the claimed invention, the Examiner in the paragraph bridging pages 3 and 4 of the Office Action states:

> The recitation "for applying to said liquid crystal layer an electric field substantially parallel to the substrate" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of the structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. (emphasis added).

The Examiner is apparently unaware of the parts of a claim, at least in relation to apparatus claims 1-17. Appellants submit that, as is well accepted in patent law, a patent claim typically has three parts of a preamble, a transition, and a body. This fact is explained in the decision of E.I. DuPont De Numerous & Co. v. Monsanto Co., 903 F. supp. 680, 693 (D.Del 1995), wherein the Court stated:

> 1) Claim Construction -- The Claim Language
>
> A patent claim typically has three parts: 1) the preamble; 2) the transition; and 3) the body. 2 Donald S. Chisum, Patents §806[1][b] (1994). The preamble is "an introductory phrase that may summarize the invention, its relation to the prior art, or its intended use or properties." Id. It may also constitute a limitation on a claim. Id. The transition is a phrase containing a term such as "comprising" that serves to connect the preamble to the body of the claim. Id. The third part of a patent claim, the body, is composed of the recitation of the elements and limitations [**22] that "define the product or process to be encompassed within the patent monopoly." Id.

Applicants note that the aforementioned statement was also cited in the decision of Depuy Orthopaedics Inc. v. Androphy, 53 USPQ 2d, 1941, 1954, 3 (D.Nd Ill) (2000). As indicated, the preamble is an introductory phrase and may constitute a limitation on a claim, while the transition is a phrase containing a term such as "comprising" that serves to connect the preamble to the body of the claim, which is the third part of the claim, and is composed of the recitation of the elements and limitations that define the product or process to be encompassed within the patent monopoly. Based upon the factual analysis of the aforementioned decisions, independent claim 1, prior to the present amendment, is reproduced below and annotated with the terms of the "preamble", the "transition", and the "body".

Claim 1 Reproduced

(claim parts)

PREAMBLE:	A liquid crystal display
TRANSITION:	comprising:
BODY:	a pair of substrates, at least one of said substrates being transparent;
	a liquid crystal layer disposed between said pair of substrates;
	a group of electrodes formed on one of said pair of substrates for applying an electric field having a component substantially in parallel with a surface of said substrate to said liquid crystal layer;
	a plurality of active devices connected to said group of electrodes;
	an alignment control film disposed between said liquid crystal layer and at least one of said pair of substrate; and
	optical means formed on at least one of said pair of substrates for changing the optical property of said liquid crystal layer in accordance with an alignment state of molecules of said liquid crystal layer,

> wherein at least one of said alignment control films is an alignment control film comprising photoreactive polyimide and/or polyamic acid provided with an alignment control ability by irradiation of substantially linearly polarized light. (emphasis added).

As is apparent, the recitation concerning the "group of electrodes" was presented in claim 1 in "the body" of the claim, and can not be disregarded as being part of the preamble.

By the present amendment, claim 1 has been amended to clarify the features and arrangement of the group of electrodes by now reciting "a group of electrodes formed on one of said pair of substrates and configured so as to apply an electric field having a component substantially in parallel with a surface of said one of said pair of substrates to said liquid crystal layer". Applicants submit that claim 1, as amended defines a structural arrangement of a group of electrodes which operates in a particular manner representing a functional limitation which must be given proper consideration in accordance with MPEP §2173.05(g). Thus, the recited recitation appears in independent claim 1, as amended, and its dependent claims 2-17, and Applicants submit that such feature of the body of the claim can not be disregarded, in the manner proposed by the Examiner.

Further, by the present amendment, insofar as it may be considered that the recitation of the group of electrodes functioning in the manner indicated, may have been considered to be part of the preamble of claim 18, by the present amendment, claim 18 now recites a method of producing a liquid crystal display, comprising the steps of "forming a group of electrodes on one substrate and configuring the group of electrodes so as to apply an electric field having a component substantially in parallel with a surface of the one substrate; forming a plurality of active devices on the one substrate which are connected to the group of electrodes; sandwiching a liquid crystal layer between a pair of substrates including the one substrate and another substrate so as to enable the group of electrodes to apply the electric field having the components substantially in parallel to the surface of the one substrate to

the liquid crystal layer, at least one of the substrates being transparent; ...". Thus, at least by the present amendment, the steps of the method of claim 18 are presented in the "body" of claim 18, and can not be disregarded, as being in the preamble.

In applying Gibbons to independent claims 1 and 18 and therewith the dependent claims, the Examiner refers to a group of electrodes and a plural number of active elements being formed on one of the pair of substrates in column 18, lines 28-32. Irrespective of this position by the Examiner, column 1, lines 40-44 of Gibbons, provides that current liquid crystal display elements include a product that utilizes a twisted pneumatic mode, i.e., having a structure wherein the aligning direction of pneumatic liquid crystal molecules is twisted by 90 degrees between a pair of upper and lower electrode substrates. As illustrated in Fig. 1 of Gibbons, each of the pair of substrates is provided with a transparent electrode 2, and an optical alignment in layer 3 is provided thereon. Thus, irrespective of the contentions by the Examiner, there is no disclosure in Gibbons, in the sense of 35 USC 102 or 35 USC 103, of a group of electrodes formed on one substrate and configured so as to apply an electric field having a component substantially in parallel with a surface of the one substrate to the liquid crystal layer, as recited in independent claims 1 and 18 of this application. That is, in accordance with the disclosure of Gibbons, the arrangement of a transparent electrode 2 on each of the lower substrate and the upper substrate, as illustrated in Fig. 1 of Gibbons, results in application of a vertical electric field between the lower and upper electrodes as is well known to those skilled in the art to which the present invention pertains. Thus, Applicants submit that independent claims 1 and 18 and the dependent claims recite features which patentably distinguish over Gibbons in the sense of 35 USC 102 and 35 USC 103, and all claims should be considered allowable thereover.

With respect to the dependent claims, Applicants note that while the Examiner contends with regard to claims 3-5, that Gibbons teaches cyclobutanetetracarboxylic acid dianhydride (D5) as an alicyclic tetracarboxylic dianhydride, Applicants submit that in Gibbons, a light sensitive diarylketone tetracarboxylic dianhydride is actually a

basic skeleton. Gibbons discloses at column 10, lines 46-58 that an alicyclic tetracarboxylic dianhydride including cyclobutanetetracarboxylic acid dianhydride (D5) imparts useful solubility properties to polyimides. That is, an important light reaction in Gibbons is to use ketone, and Gibbons teaches that the alicyclic acid anhydride is used as a copolymer of ketone compound for imparting useful solubility properties. For example, Table 3 at pages 28-29 of Gibbons shows eight kinds of alicyclic acid anhydrides other than cyclobutanetetracarboxylic acid dianhydride (D5). In contrast to Gibbons, in the present invention, no ketone compounds are used, and cyclobutanetetracarboxylic acid type light reaction plays a key role in a photo-alignment technology. This is based the present inventors' first finding that the alignment process, as disclosed in the present specification, which is the particular reaction of "a maleimide formation from light cleavage (opening) of cyclobutane ring, and a surface stabilization by a crosslinking reaction thereof", is important.

Regarding claim 6, the present invention achieves a more effective light reaction by combining an aromatic diamine with the cyclobutane type acid anhydride as recited in the claims 3-5. Thus, the use of such an aromatic diamine in the present invention obtains a photo-alignment layer having a stable surface, which has not been obtained so far, and uses a quite different material which can suppress an after-image (residual image) peculiar to a system utilizing parallel component of an electric field, as recited in claim 1.

Regarding claim 10, the reference to Gallagher (US 4,835,249) to support the rejection based on Gibbons under 35 USC 102, is not understood. Applicants submit that Gallagher discloses melt-polymerization temperature of polyimide, but not glass-transition temperature. In respect to the feature of "the alignment control film has a glass transition temperature equal to or higher than 250°C", as recited in the claim 10, in case a photo-alignment is achieved by the use of the cyclobutanetetracarboxylic acid type material of the present invention, surfaces of the alignment control film are stabilized by accelerating a crosslinking reaction of maleimide after photodissociation, as described at the present specification. For that

purpose, the above reaction can be accelerated and stabilized by subjecting to at least one treatment selected from heating, infrared radiation, far infrared radiation, electron beam irradiation and radiation irradiation. Claim 10 recites that the alignment control film secures a glass transition temperature equal to or higher than 250°C. In contrast, Gallagher does not disclose a glass transition temperature, but rather discloses a polyamide consisting of only aromatic cyclic structure such as benzene ring, and does not disclose alicyclic cyclobutane type compounds, which are quite different from benzene skeleton.

Thus, with regard to the dependent claims rejected under 35 USC 102 based on Gibbons, Applicants submit that independent claims 1 and 18 and the dependent claims, as amended, recite features not disclosed by Gibbons in the sense of 35 USC 102 nor rendered obvious over Gibbons in the sense of 35 USC 103, and all claims should be considered allowable thereover.

With respect to the secondary references utilized in combination with Gibbons, Applicants submit that such references can not properly combined with Gibbons, in that they utilize different structures contrary to the disclosure of Gibbons, and that any such combination represents a hindsight reconstruction attempt, which is not proper. Further, Applicants submit that the secondary references fail to overcome the deficiencies of Gibbons as pointed out above.

In view of the above amendments and remarks, Applicants submit that all claims present in this application patentably distinguish over the cited art and should now be in condition for allowance. Accordingly, issuance of an action of a favorable nature is courteously solicited.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing

of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 500.46091X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

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